

## REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 5, 15 and 20 are amended. Claims 1-34 are pending in the application.

### I. Rejection under 35 U.S.C. § 102

In the Office Action, at page 2, numbered paragraph 2, claims 1-4, 11-14, 16-19 and 21-32 were rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 6,031,684 to Gregg. This rejection is respectfully traversed because Gregg does not discuss or suggest:

moving the transducer...according to a track seek controlling process in which an asymmetrical sine wave acceleration trajectory  $a(t)$  is used in a track seek mode,

as recited in independent claim 1, and similarly in independent claims 11 and 16. Further, Gregg does not discuss or suggest:

moving a transducer...according to a track seek controlling process in which an asymmetrical sine wave current is applied to the voice coil in a track seek mode,

as recited in independent claim 21, and similarly in independent claims 25 and 29.

As a non-limiting example, the present invention as set forth, for example, in claim 1 is directed to a method for controlling a track seek servo where a transducer is moved according to a track seek process. An asymmetrical sine wave acceleration trajectory is used in a track seek mode. In the asymmetrical sine wave acceleration trajectory, the value of the peak in the acceleration section is less than the absolute value of the peak in the deceleration section and the acceleration section has a longer duration than that of the deceleration section.

Gregg discusses a method for optimizing gain in which a model reference seek is performed using sinusoidally derived reference current, velocity and position signals to move the head to a destination track. The Examiner alleges that Fig. 5 of Gregg "teaches an asymmetrical sine wave acceleration trajectory used in a seek mode". However, it is unclear as to how one would define the current curve 270 as being asymmetrical. Gregg merely discusses that a "current curve 270 corresponds to the discrete values of the reference current signal  $I_{ref}$  output by the reference generator 214" (col. 6, lines 58-60), but does not discuss or suggest that the current curve is asymmetrical.

In Gregg, the peak of the positive section of the current curve has a current value equal to that of the peak of the negative section of the current curve. Further, the duration of the positive section of the current curve, from a time period of 0 until the negative section, is equal to that of the duration of the negative section of the current curve, from the transition point between the position section and the negative section to the next transition point between the negative section and the positive section. Therefore, symmetry exists between the positive section and negative section of the current curve. In contrast, the present invention as set forth in claims 21-23, for example, is directed to an asymmetrical sine wave current that has a positive peak value less than that of the absolute value of the negative peak current value, and additionally has a positive section with a greater duration than that of the negative section. Gregg does not discuss or suggest that the current curve is asymmetrical.

Therefore, as Gregg does not discuss or suggest "moving the transducer...according to a track seek controlling process in which an asymmetrical sine wave acceleration trajectory  $a(t)$  is used in a track seek mode," as recited in independent claims 1, 11 and 16, and Gregg does not discuss or suggest "moving a transducer...according to a track seek controlling process in which an asymmetrical sine wave current is applied to the voice coil in a track seek mode," as recited in independent claims 21, 25 and 29, claims 1, 11, 16, 21, 25 and 29 patentably distinguish over the reference relied upon. Accordingly, withdrawal of the § 102(b) rejection is respectfully requested.

Claims 2-4, 12-14, 17-19, 22-24, 26-28 and 30-32 depend either directly or indirectly from independent claims 1, 11, 16, 21, 25 and 29 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 26 recites that "the asymmetrical sine wave current has a positive peak current value that is less than an absolute value of a negative peak current value." Gregg specifically does not show this recitation in Fig. 5, but instead shows that the positive peak current value of current curve 270 is 1.0 and the absolute value of the negative peak current value is 1.0. Further, the Examiner alleges that the "asymmetrical sine wave acceleration trajectory...has an acceleration section with a greater duration than the deceleration...[and] [t]he deceleration moves twice the magnitude in the same period, so the acceleration is half as slow." The applicants respectfully disagree that the deceleration moves twice the magnitude in the same period. The deceleration in Gregg does not move twice the magnitude in the same period as the acceleration. Therefore, claims 2-4, 12-14, 17-19, 22-24, 26-28 and 30-32 patentably distinguish over the reference relied upon for at least the reasons noted above.

## **II. Rejection under 35 U.S.C. § 103**

In the Office Action, at page 3, numbered paragraph 4, claims 33 and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gregg in view of U.S. Patent No. 6,744,590 B2 to Chu et al. This rejection is respectfully traversed.

As discussed above with respect to claim 11, Gregg does not discuss or suggest "using an asymmetrical sine wave acceleration trajectory  $a(t)$ " to move the transducer, as recited in independent claim 11. Chu fails to make up for the deficiency in Gregg. Chu discusses moving a transducer from a first track to a second track using an acceleration trajectory, but Chu does not discuss or suggest moving the transducer using an asymmetrical sine wave acceleration trajectory. Claim 33 depends directly from claim 11 and includes all the features of claim 11, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 33 discusses "a slider receiving the transducer and generating an air bearing in a space between the transducer and the surface of the disk; a head gimbal assembly receiving the slider; an actuator arm of the actuator attached to the head gimbal assembly and having a voice coil; and a bearing assembly, the actuator arm rotating around the bearing assembly when current is supplied to the voice coil." Therefore, claim 33 patentably distinguishes over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

In a similar argument to that with respect to claims 11 and 33, claim 34 discusses "controlling movement of the transducer from a current one of the tracks to a target one of the tracks using an asymmetrical sine wave acceleration trajectory." Gregg does not discuss or suggest using an asymmetrical sine wave acceleration trajectory to control movement of the transducer, and Chu fails to make up for the deficiency in Gregg. Therefore, as Gregg does not discuss or suggest "using an asymmetrical sine wave acceleration trajectory," as recited in claim 34, and Chu fails to make up for this deficiency in Gregg, claim 34 patentably distinguishes over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

## **III. Allowable Subject Matter**

Applicants are appreciative of the allowances of claims 6-10 and of the indication that claims 5, 15 and 20, which were objected to, would be allowable if rewritten in independent form. Claims 5, 15 and 20 were therefore rewritten in independent form, and accordingly, withdrawal of the objection is respectfully requested.

## Conclusion

In accordance with the foregoing, claims 5, 15 and 20 have been amended. Claims 1-34 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

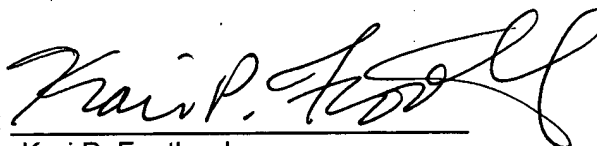
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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